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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,327	11/13/2001	Whu-Ming Young	ITEX 99001C2	7027

7590 03/27/2003

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EXAMINER
FAN, CHIEH M

ART UNIT	PAPER NUMBER
2634	6

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/054,327	YOUNG ET AL.	
	Examiner	Art Unit	
	Chieh M Fan	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-21,27-31,37-41 and 61-95* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-21,27-31,37-41 and 61-95* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

In particular, the abstract of the instant application contains the word “disclosed”,

which should be changed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 71-82 and 86 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 71-82, the claimed limitation "said DSL data or said DSL operational and/or control information is transferred between the DSL digital circuit section and the DSL analog circuit section over said data line during a single bit clock signal period" in claim 71 has no support in the specification. The specification on page 14, lines 20-22 states "the word clock rate provides timing for transmit and receive data samples. ... each pulse in the WORD CLOCK represents the beginning of a sample word". Further, the specification in page 16 clearly indicates that the control data has 1+Nc or 1+2Nc bits. That is, the control data has more than one bit. Therefore, the DSL data or the DSL control information clearly cannot be transferred over said data line during a single bit clock signal period.

Regarding claim 86, the claimed limitation has no support in the specification. The applicants are requested to identify which portion in the specification supports the claim.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 41, 79 and 86 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 41 recites the limitation "the xDSL capable modem" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 79 recites the limitation "said predetermined length" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 86 recites the limitation "said bandwidth" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 37-41 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 37-41 of U.S. Patent No. 6,345,072 in view of Bingham et al. (US Patent 5,680,394).

Claims 37-41 of U.S. Patent No. 6,345,072 claim the same invention except for a frame signal used for clocking xDSL data. Bingham et al. teaches using a sample clock (i.e., a bit clock), a symbol clock (i.e., a word clock) and a super frame clock for clocking DSL data so as to synchronize the transmitter and the receiver (see Fig. 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a frame signal for clocking xDSL data so as to synchronize the transmitter and the receiver.

8. Claims 61-66 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 61-66 of U.S. Patent No. 6,345,072 in view of Bingham et al. (US Patent 5,680,394).

The difference between claims 61-66 of the instant application and the claims 61-66 of U.S. Patent No. 6,345,072 lies in (a) claims 61-66 of the instant application does not specify the communication data is xDSL data, i.e., the claim is broadened by not specifying the data type; and (b) the digital controller and the analog front end are communicated over a multiplex communication bus. With respect to item (a), the broader application claims would have been obvious in view of the narrower issued claims (see *In re Emert*, 124 F.3d 1458, 44 USPQ2d 1149). With respect to item (b), Bingham et al. teaches a method for the transmission of xDSL data (see col. 1, line 6-

col. 2, line 26) between a central unit and a plurality of remote units (see Fig. 1b). The central unit includes a master oscillator (master clock) that feed a sample clock and a symbol clock (see col. 7, lines 25-47, Fig. 6, also see claim 23). Each remote unit may be grant access in successive time period; that is known as Time Division Multiple Access (TDMA) (see col. 8, lines 8-10). In modern communication, it is desirable to design a communication system for multiple users. The use of TDMA has the advantage of enabling multiple users to share a common communication channel. Based on the reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to communication the digital controller and the analog front end over a multiplexed communication bus.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 17-21 67-73, 78, 79, 82-85, 87-93 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bingham et al. (US Patent 5,680,394).

Regarding to claims 17, 20, 21, 67, 69-73, 78, 82, 83, 84, 87, 88, 90-93 and 95, Bingham et al. disclose a method for the transmission of xDSL data (see col. 1, line 6-

col. 2, line 26) between a central unit and a plurality of remote units (see Fig. 1b). The central unit includes a master oscillator (master clock) that feed a sample clock and a symbol clock (see col. 7, lines 25-47, Fig. 6, also see claim 23). Each remote unit may be grant access in successive time period; that is known as Time Division Multiple Access (TDMA) (see col. 8, lines 8-10). Furthermore, a plurality of transmitting line and receiving lines are provided for communication (see 206a-206e in Fig. 1b). Bingham et al. further teach that the information for the media access control may be included as the overhead in the downstream signal (col. 8, lines 18-23). The difference between Bingham et al. and the instant invention lies in that Bingham et al. teach the communication link between a central unit and a plurality of remote units, but do not teach the communication link between a digital controller and a plurality of analog codecs. However, as recited in the claim, the digital controller and the analog codecs do not perform any other function besides transmitting/receiving xDSL data. The digital controller and analog codecs are broadly interpreted as the transmitting end and receiving ends in a communication link. Based on this reason, it would have been obvious for a person of ordinary skill in the art at the time the invention was made to substitute the central unit and remote units with the digital controller and analog codecs in the communication system of Bingham et al.

Regarding claims 18, 19, 74-77, and 85, the use of a control signal for system setting or for controlling transmission power is well known and widely used in the art (official notice is taken) so as to provide the user more flexibility to change the system constraints as desired or required without physically approaching to the system. Based

on the reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the media access control of Bingham et al to control the system setting or the power to a desired value.

Regarding claim 79, the length of a control signal depends the amount of control information contained in the control signal. The amount of control information depends on the intended use of the control information. Therefore, the length of a control signal is merely is design choice, dictated by the system requirement and the user's need. Specifying the length of the control signal would not provide any inventive steps.

11. Claims 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bingham et al. (US Patent 5,680,394).

Bingham et al. disclose a method for the transmission of xDSL data (see col. 1, line 6-col. 2, line 26) between a central unit and a plurality of remote units (see Fig. 1b). The central unit includes a master oscillator (master clock) that feed a sample clock and a symbol clock (see col. 7, lines 25-47, Fig. 6, also see claim 23). Each remote unit may be grant access in successive time period; that is known as Time Division Multiple Access (TDMA) (see col. 8, lines 8-10). Furthermore, a plurality of transmitting line and receiving lines are provided for communication (see 206a-206e in Fig. 1b). Bingham et al. further teach that the information for the media access control may be included as the overhead in the downstream signal (col. 8, lines 18-23). The difference between Bingham et al. and the instant invention lies in that (a) Bingham et al. teach the communication link between a central unit and a plurality of remote units, but do not

teach the communication link between a digital controller and a plurality of analog codecs, and (b) the communication link is located within a PC.

With respect to item (a), as recited in the claim, the digital controller and the analog codecs do not perform any other function besides transmitting/receiving xDSL data. The digital controller and analog codecs are broadly interpreted as the transmitting end and receiving ends in a communication link. Based on this reason, it would have been obvious for a person of ordinary skill in the art at the time the invention was made to substitute the central unit and remote units with the digital controller and analog codecs in the communication system of Bingham et al.

With respect to item (b), the location of the communications link would not affect operation of the method. The recitation of a PC is only directed to the intended use (location) of the communications link, but would not change any step of the claimed method. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of Bingham et al. in a PC.

12. Claims 31, 80, 81 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bingham et al. (US Patent 5,680,394) in view of the admitted prior art.

Regarding claim 31, Bingham et al. teaches the claimed invention, see the rationale applied to claim 27 above, but fails to teach the digital controller is placed on a computer motherboard.

The admitted prior art described in the background section and in Fig. 1 teaches separating the analog and digital portions of a high-speed modem. The digital controller is placed on the motherboard and the analog codec is placed on a card that is physically separated from the motherboard. Such arrangement would keep the analog codec free from the electronic noise from the electronic components on the motherboard. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the digital controller on the motherboard and place the analog codec on a card that is physically separated from the motherboard, so as to keep the analog codec free from the electronic noise from the electronic components on the motherboard.

Regarding claims 80 and 81, Bingham et al. teaches the claimed invention, see the rationale applied to claim 71 above, but fails to teach the digital controller is placed on a computer motherboard.

The admitted prior art described in the background section and in Fig. 1 teaches separating the analog and digital portions of a high-speed modem. The digital controller is placed on the motherboard and the analog codec is placed on a card that is physically separated from the motherboard. Such arrangement would keep the analog codec free from the electronic noise from the electronic components on the motherboard. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the digital controller on the motherboard and place the analog codec on a card that is physically separated from the motherboard, so

as to keep the analog codec free from the electronic noise from the electronic components on the motherboard.

Regarding claim 94, Bingham et al. teaches the claimed invention, see the rationale applied to claim 90 above, but fails to teach the digital controller is placed on a computer motherboard and the analog codec is placed at a position free from the electronic noise from the electronic components on the motherboard.

The admitted prior art described in the background section and in Fig. 1 teaches separating the analog and digital portions of a high-speed modem. The digital controller is placed on the motherboard and the analog codec is placed on a card that is physically separated from the motherboard. Such arrangement would keep the analog codec free from the electronic noise from the electronic components on the motherboard. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the digital controller on the motherboard and place the analog codec on a card that is physically separated from the motherboard, so as to keep the analog codec free from the electronic noise from the electronic components on the motherboard.

13. Claim 89 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bingham et al. (US Patent 5,680,394) in view of Suzuki (U.S. Patent No. 6,529,479).

Bingham et al. teaches the claimed invention, see the rationale applied to claim 83 above, but fails to teach that the xDSL transmit data includes ATM cells.

Suzuki teaches xDSL transmit data includes ATM cells (see cols. 1-3, especially col. 2, lines 37-49) such that ATM service may implemented in a global scale. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include ATM cells in the xDSL data so as to implement the ATM service in a global scale.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Arnon (US Patent 5,408,260) discloses an ADSL system for communicating bi-directional data and control signals. Tran et al. (US Patent 5,931,929) teach an integrated modem on a motherboard. Roy (US Patent 6,049,531) discloses an intelligent ATM ADSL modem.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M Fan whose telephone number is (703) 305-0198. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone numbers

for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

Chieh M Fan
Examiner
Art Unit 2634

cmf
March 20, 2003